

This review package can be handed in as you complete both sides of a sheet going through the chapter or at the latest on the day of this chapter's test. Use it as an on-going review or as a study booklet right before the test.

Determine the greatest common factor of 36, 48 and 60.

$$36 = 2 \cdot 18$$

$$= 2 \cdot 2 \cdot 9$$

$$= 2^2 \cdot 3^2$$

$$(2) \times (2) \times (3) \times 2$$

$$48 = 2 \cdot 24$$

$$= 2 \cdot 2 \cdot 12$$

$$= 2^2 \cdot 3 \cdot 4$$

$$= 2^4 \cdot 3$$

$$GCF = 2^2 \cdot 3$$

$$GCF = 12$$

$$48 = 2 \cdot 24$$

$$= 2 \cdot 2 \cdot 12$$

$$= 2^2 \cdot 3 \cdot 4$$

$$= 2^4 \cdot 3$$

$$60 = 2 \cdot 30$$

$$= 2 \cdot 2 \cdot 15$$

$$= 2^2 \cdot 3 \cdot 5$$

$$(2) \times (2) \times (3) \times 5$$

Determine the least common multiple of 35, 60 and 75.

$$35 = 5 \cdot 7$$

$$60 = 2^2 \cdot 3 \cdot 5$$

$$75 = 3 \cdot 25$$

$$75 = 3 \cdot 5^2$$

$$35 = 5 \cdot 7$$

$$5 \cdot 7$$

$$LCM = 2^2 \cdot 3 \cdot 5^2 \cdot 7$$

$$LCM = 2100$$

$$60 = 2^2 \cdot 3 \cdot 5$$

$$= 2^2 \cdot 3 \cdot 5$$

$$= 2^2 \cdot 3 \cdot 5$$

$$= 2^2 \cdot 3 \cdot 5$$

$$75 = 3 \cdot 25$$

$$= 3 \cdot 5^2$$

$$= 3 \cdot 5^2$$

$$= 3 \cdot 5^2$$

Earth, Jupiter, Saturn, and Uranus revolve around the Sun every 1, 12, 30, and 84 years respectively. If the four planets currently line up, how many years will pass before they would line up again?

Hint: Find the LCM.

$$1 = 1$$

$$12 = 2^2 \cdot 3$$

$$12 = 2^2 \cdot 3$$

$$= 2^2 \cdot 3$$

$$30 = 5 \cdot 6$$

$$30 = 2 \cdot 3 \cdot 5$$

$$30 = 2 \cdot 3 \cdot 5$$

$$= 2 \cdot 3 \cdot 5$$

$$= 2 \cdot 3 \cdot 5$$

$$= 2 \cdot 3 \cdot 5$$

$$84 = 2 \cdot 42$$

$$= 2 \cdot 2 \cdot 21$$

$$= 2^2 \cdot 3 \cdot 7$$

$$= 2^2 \cdot 3 \cdot 7$$

$$LCM = 1 \cdot 2^2 \cdot 3 \cdot 5 \cdot 7$$

$$LCM = 420 \text{ yrs}$$

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Use factoring to determine the square root of 196.

$$\begin{array}{c}
 \hat{2} \times 98 \\
 | \quad \hat{2} \times 49 \\
 | \quad | \quad \hat{7} \times 7 \\
 \hline
 \therefore \sqrt{196} = \sqrt{2 \cdot 2 \cdot 7 \cdot 7} \\
 \sqrt{196} = 2 \cdot 7 \\
 \boxed{\sqrt{196} = 14}
 \end{array}$$

$2 \times 2 \cdot 7 \cdot 7$
 $(2 \cdot 7) (2 \cdot 7)$
 $(14) (14)$

Use factoring to determine the cube root of 216.

$$\begin{array}{c}
 \hat{8} \times 27 \\
 | \quad | \quad \hat{3} \times 3 \times 3 \\
 | \quad | \quad | \quad \hat{2} \times 2 \times 2 \\
 \hline
 \sqrt[3]{216} = \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3} \\
 \sqrt[3]{216} = 2 \cdot 3 \\
 \boxed{\sqrt[3]{216} = 6}
 \end{array}$$

$2 \cdot 3 \cdot 2 \cdot 3 \cdot 2 \cdot 3$
 $(2 \cdot 3) \cdot (2 \cdot 3) \cdot (2 \cdot 3)$
 $6 \cdot 6 \cdot 6$

A cube has a volume of 1331 cm^3 . Find the surface area of the cube.

$$|331| = s^3$$

$$s = \sqrt[3]{1331}$$

$$s = 11 \text{ cm}$$

$$SA = 6s^2$$

$$SA = 6(11)^2$$

$$\boxed{SA = 726 \text{ cm}^2}$$

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Factor each binomial.

a) $5x + 10$

$$= \boxed{5(x+2)}$$

b) $3x^2 - 6x$

$$= \boxed{3x(x-2)}$$

Factor each trinomial.

a) $2m^2 + 2m - 14$

$$= \boxed{2(m^2 + m - 7)}$$

b) $4 - 8z + 12z^2$

$$= 12z^2 - 8z + 4$$
$$= \boxed{4(3z^2 - 2z + 1)}$$

Factor each trinomial.

a) $10x^3 + 15x^2 - 5x$

$$= \boxed{5x(2x^2 + 3x - 1)}$$

b) $3m^2n^3 - 9mn^2 + 18m^3n^2$

$$= \boxed{3mn^2(mn - 3 + 6m^2)}$$

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Expand and simplify.

a) $(x-3)(x+10)$

$$= x^2 + 7x - 30$$

b) $(n-12)(n-5)$

$$= n^2 - 17n + 60$$

Factor.

a) $x^2 + 2x - 24$

$$= (x+6)(x-4)$$

b) $x^2 - 6x + 8$

$$= (x-2)(x-4)$$

Factor.

a) $-x^2 + 5x + 6$

$$\begin{aligned} &= -(x^2 - 5x - 6) \\ &= -(x-6)(x+1) \end{aligned}$$

b) $5x^2 + 35x + 60$

$$\begin{aligned} &= 5(x^2 + 7x + 12) \\ &= 5(x+3)(x+4) \end{aligned}$$

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Expand and simplify.

a) $(3c+5)(2c-1)$

$$= \boxed{6c^2 + 7c - 5}$$

b) $(4g-7)(2g-3)$

$$= \boxed{8g^2 - 26g + 21}$$

Factor.

a) $2x^2 + 7x - 4$

$$\begin{array}{cc} 1 & 12 \\ 2 & 42 \end{array}$$

$$= \boxed{(2x-1)(x+4)}$$

b) $3x^2 - 4x - 15$

$$\begin{array}{cc} 1 & 13 \\ 3 & 155 \end{array}$$

$$= \boxed{(3x+5)(x-3)}$$

Factor.

a) $12y^2 - 5y - 2$

$$\begin{array}{ccc} 1 & 2 & 3 \\ 12 & 6 & 4 \end{array} \quad \begin{array}{c} 1 \\ 2 \end{array}$$

$$= \boxed{(3y-2)(4y+1)}$$

b) $8y^2 - 18y + 9$

$$\begin{array}{cc} 1 & 2 \\ 8 & 4 \end{array} \quad \begin{array}{cc} 1 & 3 \\ 9 & 3 \end{array}$$

$$= \boxed{(2y-3)(4y-3)}$$

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Expand and simplify.

a) $(3x + y)(x - 2y)$

$$= \boxed{3x^2 - 5xy - 2y^2}$$

b) $(2m - 5n)^2$

$$= \boxed{4m^2 - 20mn + 25n^2}$$

Expand and simplify.

a) $3a(2a + 1)(a - 5)$

$$= 3a(2a^2 - 9a - 5)$$

$$= \boxed{6a^3 - 27a^2 - 15a}$$

b) $(4m + 1)(2m^2 - 3m - 7)$

$$= 8m^3 - 12m^2 - 28m + 2m^2 - 3m - 7$$

$$= \boxed{8m^3 - 10m^2 - 31m - 7}$$

Expand and simplify.

$(2x^2 - x - 3)(x^2 + 4x + 1)$

$$= 2x^4 + 8x^3 + 2x^2 - x^3 - 4x^2 - x - 3x^2 - 12x - 3$$

$$= \boxed{2x^4 + 7x^3 - 5x^2 - 13x - 3}$$

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Factor.

a) $x^2 + 8x + 16$

$$= (x+4)^2$$

b) $4x^2 - 12x + 9$

$$= (2x-3)^2$$

Factor.

a) $36x^2 - 49$

$$= (6x+7)(6x-7)$$

b) $2d^2 - 50$

$$= 2(d^2 - 25)$$
$$= 2(d+5)(d-5)$$

Factor.

a) $3a^2 - 5ab - 2b^2$

$$\frac{1}{3} \quad \frac{1}{2}$$

$$= (3a+b)(a-2b)$$

b) $5m^2 - 16mn + 3n^2$

$$\frac{1}{5} \quad \frac{1}{3}$$

$$= (5m-n)(m-3n)$$